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REMARKS

After the foregoing amendment, claims 6-9 are active in the present application. Claims 1-5 have been cancelled, claims 6 and 9 have been amended, and claims 10-15 have been withdrawn. In addition, FIG. 3 has been amended. No new matter has been added by the amendment and the amendment is believed to place the application in condition for allowance. Accordingly, reconsideration and allowance of the application, as amended, are respectfully requested.

Applicants confirm the provisional election made on March 1, 2005 and have withdrawn claims 10-15.

The drawings were objected to because FIG. 3 failed to label Vss at the sources of NMOS transistors 308 and 312, as defined in the specification at paragraphs [308] and [312]. Applicants submit herewith a replacement sheet that labels the sources of the NMOS transistors 308 and 312 as connected to Vss. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

Claims 1-9 were objected to for including a number of informalities. Applicants have reviewed the claims and made amendments necessary to overcome each of the informalities indicated by the Examiner. For example, the recitations of "as an input" and "as an output" have been deleted as unnecessary because if a signal is "received" it is an input and if it is "sent" it is understood to be an output. By removing these terms, the claims are no longer ambiguous. In view of the amendments to claims 6 and 9,

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Applicants respectfully submit that the objection to the claims has been overcome and therefore request that it be withdrawn.

Claim 1 was rejected as anticipated by U.S. Patent No. 5,877,633 (Ng). Claim 1 has been cancelled.

Claims 2-9 were rejected as unpatentable over Ng in view of U.S. Patent No. 6,842,043 (Nguyen). Nguyen is cited for disclosing a fast switching unidirectional level shifter (Nguyen FIG. 3 and col. 8, lines 30-35). The Office Action states that it would have been obvious to modify the bidirectional level shifter of Ng with the faster circuit of Nguyen. Applicants respectfully traverse the rejection.

Claims 6 and 9 are directed to bi-directional level shifters, each having first and second I/O terminals and first and second circuits coupled to the I/O terminals. The first and second circuits each include a pair of PMOS transistors, a pair of NMOS transistors, and an inverter.

Ng is directed to a bidirectional level shifter that is similar to the present invention, but differs in at least one significant aspect, namely, in that Ng includes four pull-up circuits 208, 209, 210 and 211. As shown in FIG. 3 of Ng, each of these pull-up circuits 208-211 includes a pull-up resistor (R1-R4), and thus, the Ng level shifter always consumes DC current. In contrast, the present invention does not include any pull-up resistors and so consumes much less DC current than the circuit disclosed by Ng.

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Nguyen is directed to a uni-directional level shifter circuit. A bi-directional level shifter is not disclosed, nor is it discussed as to how the uni-directional level shifter would be modified to become a bi-directional level shifter. Thus, Nguyen must be used in combination with Ng. Combining the teachings of Ng and Nguyen may provide a bi-directional level shifter, but according to the teachings of Ng, would include a plurality of pull-up resistors, and would thus constantly consume DC current. Since the present invention does not include any pull-up resistors, it consumes less DC current.

Accordingly, Applicants submit that claims 6-9 are nonobvious and respectfully request that the rejection under 35 U.S.C. §103 be withdrawn.

In view of the foregoing amendment and remarks, it is respectfully submitted that the present application, including claims 6-9, is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

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